**7.4 – Properties of Logarithms  
Objective: To use the properties of logarithms**

**Properties of Logarithms**;

*Let b, u, and v be positive numbers such that b ≠ 1*

|  |  |
| --- | --- |
| **Property** | **Equation** |
| *Product* | logb(u\*v) = logbu + logbv |
| *Quotient* |  |
| *Power* | logb(un) = nlogbu |

*Examples:*

*Evaluate the expression*

 

 

*Use log27 ≈ 2.81 and log221 ≈ 4.39 to approximate the value of the expression*

log23 log249

log2147 log2441

*Expand the expression*

  

You can also go in the reverse direction, and compress the expression

*Examples: Compress the expression*

 log 6 + 2 log 2 – log 3

**Change-of-Base Formula**;

Let u, b, and c be positive numbers with b ≠ 1 and c ≠ 1.

* ****

In particular:  OR 

*Examples:*

*Use the change-of-base formula to evaluate the expression*

log37 log925

log1681 

**HMWK: page 465 #1-8, 9-37 (odd)**